BioOne COMPLETE

An Additional Case of Leptospirosis in a Harbor Seal

Authors: Stevens, Ed, Lipscomb, Thomas P., and Gulland, Frances M.D.

Source: Journal of Wildlife Diseases, 35(1) : 150

Published By: Wildlife Disease Association

URL: https://doi.org/10.7589/0090-3558-35.1.150

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

Downloaded From: https://bioone.org/journals/Journal-of-Wildlife-Diseases on 28 Mar 2024
Terms of Use: https://bioone.org/terms-of-use

Journal of Wildlife Diseases, 35(1), 1999, p. 150
© Wildlife Disease Association 1999

LETTER TO THE EDITOR . . .

An Additional Case of Leptospirosis in a Harbor Seal

Stamper et al. (1998) reported the first recognized cases of leptospirosis in phocids. In the two harbor seals (*Phoca vitulina*) that were the subjects of that report, infection was believed to have taken place in a rehabilitation center. We report an additional case of leptospirosis in a stranded harbor seal presented to a rehabilitation center; however, in this case, there is strong evidence that infection occurred in the natural environment.

An approximately 7-mo-old, 16 kg, 92 cm female harbor seal (AFIP # 26155116), was found stranded at Cowell's Beach (Santa Cruz County, California, USA; 37°8′N, 122°20′W) on 8 January 1998. The seal was in respiratory distress, had dried mucous membranes, and did not move when approached or touched on the beach. It was transported to a marine mammal rehabilitation center where it died within 5 hr after arrival.

Necropsy findings included a blubber layer thickness over the sternum of only 12 mm indicating poor nutritional status and multifocal congestion of the lungs with severe interstitial edema. Histologically, there was severe tubulointerstitial nephritis with multifocal tubular ectasia and necrosis. Numerous lymphocytes and plasma cells expanded the interstitium and neutrophils were present in tubular lumens. The Warthin-Starry method demonstrated myriad intratubular argyrophilic spirochetal bacteria, morphologically consistent with *Leptospira interrogans* (Luna, 1968). Leptospirosis was considered the cause of death.

Leptospirosis is typically acquired through contact of the organism with mucous membranes or abraded skin. Four to 10 days after entering the host, a bacteremia develops lasting from several hours to days during which the organisms are distributed to various organs including the kidneys. There, the leptospires migrate through the interstitium, localize in tubules, multiply, and eventually are shed in the urine (Thiermann, 1984; Prescott, 1993).

The 4 to 10 day interval between exposure and bacteremia indicates that the seal, having died within 5 hr of arrival at the rehabilitation center, was infected prior to arrival. Furthermore, the lymphocytes and plasma cells in the renal interstitium are characteristic of an inflammatory reaction of at least several days duration (Slauson and Cooper, 1990).

These findings provide strong evidence that leptospirosis affects free-living harbor seals in addition to those in captivity.

LITERATURE CITED

LUNA, L. G. 1968. Manual of histological staining methods of the Armed Forces Institute of Pathology. 3rd Edition. McGraw-Hill, New York, New York, 258 pp.

PRESCOTT, J. F. 1993. The urinary system: Leptospirosis. *In* Pathology of domestic animals, K. V. F. Jubb, P. C. Kennedy, and N. Palmer (eds.). Academic Press, San Diego, California, pp. 503–511.

SLAUSON, D. O., AND B. J. COOPER. 1990. Inflammation and repair. *In* Mechanisms of disease, J. W. Pine Jr. (ed.). Williams & Wilkins, Baltimore, Maryland, pp. 167–301.

STAMPER, M. A., F. M. D. GULLAND, AND T. SPRAKER. 1998. Leptospirosis in rehabilitated Pacific harbor seals from California. Journal of Wildlife Diseases 34: 407–410.

THIERMAN, A. B. 1984. Leptospirosis: Current developments and trends. Journal of the American Veterinary Medical Association 184: 722–725.

Received for publication 15 September 1998.

Ed Stevens and Thomas P. Lipscomb, Department of Veterinary Pathology, Armed Forces Institute of Pathology, Bldg. 54, Room G117, 14th Street & Alaska Ave. NW, Washington, DC 20306, USA.

Frances M.D. Gulland, The Marine Mammal Center, Marin Headlands, GGNRA, Sausalito, California 94965, USA.

Downloaded From: https://bioone.org/journals/Journal-of-Wildlife-Diseases on 28 Mar 2024
Terms of Use: https://bioone.org/terms-of-use